L 08760-67   EWT(m)/EWP(t)/ETI   IJP(c)   JD/HW
ACC NR: AP6029127

AUTHOR: Mironskiy, L.V.; Sukhanova, R.V.; Kan, S.V.; Pyn'ko, V.G.; Sivkov, N. I.

ORG: Institute of Physics, Siberian Section, Academy of Sciences, SSSR (Institut fiz-iki Sibirskogo otdeleniya Akademii nauk SSSR); Krasnoyarsk Pedagogic Institute (Krasnoyarskiy pedagogicheskiy institut)

TITLE: Fine magnetic structure of the domains in iron-nickel films /Report, All-Union Conference on the Physics of Ferro- and Antiferromagnetism held 2-7 July 1965 in Sverdlovsk/

TOPIC TAGS: permalloy, magnetic thin film, magnetic structure, magnetic domain struc-ture, metal film

ABSTRACT: The authors have employed an electron microscope to investigate the fine magnetic structure of the domains (magnetization ripples) in films of nickel-iron alloy vacuum deposited at 10^{-4} mm Hg onto rock salt substrates. A series of films containing 80% Ni (in the initial mix) were deposited on substrates maintained during deposition at different temperatures between 50 and 200° C, and a second series of films containing from 40 to 90% Ni were deposited on substrates maintained at 100° C. Fine magnetic structure and magnetization ripples were observed in both series of films. In the 80% Ni film deposited at 160° the crystallite size was 590 Å, the wavelength of

Card 1/2

Card 2/2 bc

AUTHOR: Kironskiy, L.V.; Sukhanova, R.V.; Kan, S.V.; Pyn'ko, V.G.; Komalov, A.S.

ORG: Institute of Physics, Siberian Section, Academy of Sciences, SSSR (Institut fiziki Sibirskogo otdeleniya Akademii nauk SSSR); Krasnoyarsk Pedagogic Institute (Krasnoyarskiy pedagogicheskiy institut)

TITLE: Fine magnetic structure of the domains in iron, nickel, and cobalt films /Report, All-Union Conference on the Physics of Ferro- and Antiferromagnetism held 2-7 July 1965 in Sverdlovsk/

ABSTRACT: The authors have investigated the fine magnetic structure of the domains (magnetization ripples) of iron, nickel, and cobalt films vacuum deposited at 10^{-4} mm Hg onto rock salt substrates maintained during deposition at temperatures between 30 and 250° C. Films were obtained whose crystallites had average linear dimensions ranging from 110 to 1200 Å, and the transition from polycrystalline to single-crystal structure was observed. Unlike the single-crystal films, the polycrystalline films always exhibited fine magnetic structure of the domains. Linear relations were found

Card 1/2

L 09128-67   EWT(m)/EWP(t)/ETI   IJP(c)   JD/HW

ACC NR,   AP6032617   SOURCE CODE: UR/0126/66/022/003/0380/0391

AUTHOR: Kirenskiy, L. V.; Pyn'ko, V. G.; Sukhanova, R. V.; Sivkov, N. I.; Pyn'ko, G. P.; Edel'man, I. S.; Komalov, A. S.; Kan, S. V.; Syrova, N. I.; Zvegintsev, A. G.

ORG: Institute of Physics SO AN SSSR (Institut fiziki SO AN SSSR); Krasnoyarsk Pedagogical Institute (Krasnoyarskiy pedinstitut)

TITLE: Epitaxial films of iron, nickel and cobalt [report presented at the Conference on Physics of Ferro- and Antiferromagnetism, Sverdlovsk, 5-7 July 1965]

SOURCE: Fizika metallov i metallovedeniye, v. 22, no. 3, 1966, 380-391

TOPIC TAGS: magnetic anisotropy, epitaxial growing, hysteresis loop, metal film

ABSTRACT: The authors study the epitaxial growth of iron, nickel and cobalt films thermally vaporized onto ionic crystals split in air and in a vacuum. It is shown that when the substrates are heated in a vacuum of 10^{-4} mm Hg, the surface state is changed with a favorable effect on epitaxy. The phase composition of the film may be controlled by proper selection of the substrate. The fields of anisotropy of the films are measured and the effect which application of a magnetic field during vaporization has on the magnetic anisotropy of the films is studied. The domain structure of the films and its dynamics are analyzed and the results are used as a basis for explaining the shape of hysteresis loops. The coercive force is measured in films of various thickness. It is shown that the coercive force of the films is always much less than the field of anisotropy and is approximately inversely proportional to the saturation magnetization. Orig. art. has: 13 figures, 1 table, 5 formulas.

SUB CODE: 11, 20/   SUBM DATE: 30Jul65/   ORIG REF: 004/   OTH REF: 007

UDC: 539.216.25:53A.221

Cord   1/1   aat

MELIKHAR, F. [Melichar, F.]; TUY, D.; KAN, V.

Diagnostic significance of the determination of transaminase
activity in the blood serum of patients with epidemic hepa-
titis. Sov. med. 28 no.4:72-75 Ap '64.

(MIRA 17:12)

1. 2-ya terapevticheskaya klinika, Brno, i Bol'nitsa im.
V'yetnamo-chekhoslovatskoy druzhby, Demokraticheskaya Res-
publika V'yetnam, Gayfong.

VAYNER, Yakov Vul'fovich; DASOYAN, Martin Avetisovich; YAMPOL'SKIY, A.M.,
        inzh., retsenzent; KAN, V.I., inzh., retsenzent; AGUF, I.A.,
        inzh., red.; VARKOVETSKAYA, A.I., red. izd-va; CHFAS, M.A., red.
        izd-va; PETERSON, M.M., tekhn. red.

[Equipment, automation and mechanization in electrochemical coat-
ing shops] Oborudovanie, avtomatizatsiia i mekhrnizatsiia tsekhov
elektrokhimicheskikh pokrytii. Moskva, Mashgiz, 1961. 404 p.
                                                (MIRA 14:10)

                    (Electroplating)

VAYNER, Ya.V.; DASOYAN, M.A.; YAMPOL'SKIY, A.M., kand. tekhn.nauk,
retsenzent; KAN, V.I., inzh., retsenzent; LYZLOV, Yu.V., kand.
khim. nauk, red.; VARKOVETSKAYA, A.I., red.izd-va; PETERSON,
M.M., tekhn. red.

[Technology of electrochemical coatings]Tekhnologiia elektro-
khimicheskikh pokrytii. Moskva, Mashgiz, 1962. 468 p.
(MIRA 15:12)

(Electroplating)

KAN, V. L.

PA 64T50

USSR/Electronics

Apr 1948

Condensers
Mathematics, Applied

"Accurate Solution of the Langmuir Problem for a
Spherical Condenser," V. L. Kan, Leningrad Poly-
tech Inst imeni M. I. Kalinin, 12 pp

"Zhur Tekh Fiz" Vol XVIII, No 4 - pp 483-94

Comments on solution to Langmuir's problem on the
distribution of potential in spherical condenser
where the current is limited by large discharge.
Accurate solution, using Bessel's function, for
boundary cases and description of the operations
for derivation of formulas. Shows possibilities
for generalizations. Submitted 6 Nov 1947.

64T50

KAN, V. L

Behavior of the electron spin in scattering. V. Kan.
Doklady Akad. Nauk S.S.S.R. 50, 139-42(1945).—The
different cross-sections for scattering of an electron with
given spin by a point charge, and by a scatterer with
charge and magnetic moment are developed with Born's
approximation. Terms contg. products of the charge and
magnetic moment components in the 2nd case appear note-
worthy.
                                              F. H. Murray

KEL'ZON, Anatoliy Saulovich; KAN, V.L., nauchnyy red.; POLYAKOV, I.I., red.; ERASTOVA, N.V., tekhn.red.

[Dynamic tasks of cybernetics] Dinamicheskie zadachi kibernetiki. Leningrad, Gos.soiuznoe izd-vo sudostroit.promyshl., 1959. 294 p.
(MIRA 12:8)

(Cybernetics)

BRODSKIY, A.D.; KAN, V.L.

Increasing the sensitivity of Rayleigh disks. Izm.tekh. 20 no.1:
56-57 Ja '59.   (MIRA 11:12)
            (Sound--Measurement)

BRODSKIY, A.D.; KAN, V.L.; PYATIGORSKIY, L.M., nauchnyy red.;
    KUZNETSOVA, M.I., red. izd-va; KASHIRIN, A.G., tekhn.
    red.

[Brief manual on mathematical processing of measurement
results] Kratkii spravochnik po matematicheskoi obrabotke
rezul'tatov izmerenii. Moskva, Gos. izd-vo standartov,
1960. 167 p.   (MIRA 14:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut metro-
logii im. D.I.Mendeleyeva (for Brodskiy, Kan)
                        (Probabilities)

67883

3.3000

13(1)

S/020/60/130/06/012/059
B013/B007

AUTHORS: Kan, V. L., Kel'zon, A. S.

TITLE: The Stable and Unstable Trajectories of Proportional Naviga-
             tion

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol 130, Nr 6, pp 1220 - 1223
             (USSR)

ABSTRACT:
The authors investigate the proportional navigation for
arbitrary integral values of the navigation constant. The
differential equations of the ideal motion of an axially
symmetric object in the horizontal plane read: $mv\dot{\psi} = (T + c_L v^2)\alpha$;
$I_z \ddot{\varphi} = -k_1(v)\beta - k_2(v)\dot{\varphi} + k_3(v)\alpha$; $\varphi = \eta - 90^0 + \alpha - \gamma$; $\psi + \gamma = \eta$;
$\psi = b\dot{\eta}$; $\dot{a} = v_s \cos\eta - v\cos\gamma$; $a\dot{\eta} = v\sin\gamma - v_s \sin\eta$. From
the system of the last four equations one obtains a closed
solution for arbitrary integral values of the navigation con-
stant. This system is then represented in the form
$\dot{a} = v_s[\cos\eta - p\cos(b-1)(\eta - \varepsilon_0)] \equiv v_s F(\eta)$;
$a\dot{\eta} = -v_s[\sin\eta + p\sin(b-1)(\eta - \varepsilon_0)] \equiv -v_s f(\eta)$,

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The Stable and Unstable Trajectories of Proportional   S/020/60/130/06/012/059
Navigation   B013/B007

where $p = v/v_s$; $\varepsilon_0 = (b\eta_0 - \psi_0)/(b - 1)$ hold. The subscript o
denotes the initial values of the variables. By integration of
the latter system of equations for $b = 4$ one obtains the
trajectory equation

$$\frac{a}{a_0}\left[\frac{p \sin 3(\eta - \varepsilon_0) + \sin \eta}{p \sin 3(\eta_0 - \varepsilon_0) + \sin \eta_0}\right]^{1/3} \prod_{i=1}^{3}\left|\frac{tg(\eta - \varepsilon_0) - tg(\eta_i - \varepsilon_0)}{tg(\eta_0 - \varepsilon_0) - tg(\eta_i - \varepsilon_0)}\right|^{-\frac{4}{3}A_i\frac{\sin \varepsilon_0}{p - \cos \varepsilon_0}},$$

where B_i, in turn, is again a rather complex function. This
trajectory equation may be simplified for special values of
ε_0. The exact solution for various integral values of the
navigation constant may be divided into two cases: odd b and
even b. A formula is written down also for the curvature of
the trajectory. The authors then investigate the behavior of
the object near the target for the case in which the object
moves more rapidly than the target. In such a case the stable
and unstable roots alternate. To the stable and unstable roots
there correspond an approach and a withdrawal from the target,

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67883

The Stable and Unstable Trajectories of Proportional   S/020/60/130/06/012/059
Navigation   B013/B007

respectively. The authors then deal with the motion of the
object near the stable roots. In the corresponding expansions
into series only the first terms are in each case retained.
With $b \geqslant 2n$ an interception (perekhvat) is possible with an
arbitrary ratio of the velocities p, arbitrary initial con-
ditions, and from an arbitrary direction. With $b < 2n$, the
limit of stability may be determined for the corresponding
variables. In a similar manner also a real motion may be
investigated, and it is further possible to select the ampli-
fication coefficients in the system of automatic control of
the motion. There are 4 figures and 4 references, 2 of which
are Soviet.

ASSOCIATION: Leningradskoye vyssheye inzhenernoye morskoye uchilishche im.
               admirala Makarova (Leningrad Higher School of Naval Engineers
               imeni Admiral Makarov)

PRESENTED: July 9, 1959, by V. I. Smirnov, Academician
SUBMITTED: July 7, 1959

Card 3/3

34763
S/140/62/000/001/004/011
C111/C444

13.2000

AUTHORS: Kan, V. L., Kel'zon, A. S.

TITLE: On strict solutions of the equations of proportional navigation

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Matematika, no. 1, 1962, 50-56

TEXT: The differential equations of proportional navigation were integrated by Spitz (Ref. 1: Partial navigation courses for a guided missile attacking a constant velocity target. Naval Research Laboratory, USA 1946) for the navigation constant b = 2.

The authors write these equations in the form

$$\dot{a} = v_s \left[\cos \eta - p \cos (b-1)(\eta - \varepsilon_0) \right] \equiv v_s F(\eta) \qquad (1.6)$$

$$a \dot{\eta} = -v_s \left[\sin \eta + p \sin (b-1)(\eta - \xi) \right] \equiv - v_s f(\eta) \qquad (1.7)$$

and integrate them for arbitrary integers b. Here a is the distance of the target A from the object B, η is the inclination angle of $\overrightarrow{BA}$; ψ is the inclination angle of the velocity v of B, where $|v|$ = const;

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On strict solutions of the equations ...

$\gamma = \eta - \psi$; v_s is the velocity of A, constant with respect to the amount and to the direction (it forms the angle η with $\overline{BA}$); $p = \dfrac{v}{v_s}$;

ε_o is defined by   (1.5)

$$\varepsilon_o(b-1) = b\eta_o - \psi_o$$

where η_o, ψ_o are the initial values of the variables. One investigates the case $p > 1$. First of all it is stated that the equation   (1.8)

$$f(\eta) = \sin \eta + p \sin (b-1)(\eta - \varepsilon_o) = 0$$

has exactly $2(b-1)$ zeros on $0 \leqslant \eta \leqslant 2\pi$ points. A zero is called stable if neighbored η converge to it with increasing time. It is proved that to stable zeros there corresponds an approximation ($\ddot{a} < 0$) and to the instabil ones there corresponds a divergence ($\ddot{a} > 0$).

The integration of the system is done by the following scheme. (1.6) is divided by (1.7), after integration of the quotients one obtains

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On strict solutions of the equations ...

$$\ln \frac{a}{a_0} = \frac{1}{b-1} \ln \frac{p \sin (b-1)(\eta - \epsilon_0) + \sin \eta}{p \sin (b-1)(\eta_0 - \epsilon_0) + \sin \eta_0} -$$

$$- \frac{b}{b-1} \int_{\eta_0}^{\eta} \frac{\cos \eta \cdot d\eta}{p \sin (b-1)(\eta - \epsilon_0) + \sin \eta}. \qquad (2.2)$$

The remaining integral is integrated for $b = 3$ with the substitution

$$\qquad (2.4)$$

$$\text{tg} \frac{\eta - \epsilon_0}{2} = z, \quad \text{tg} \frac{\eta_0 - \epsilon_0}{2} = z_0$$

and for $b = 4$ with the substitution

$$z = \text{tg}(\eta - \epsilon_0), \quad z_0 = \text{tg}(\eta_0 - \epsilon_0). \quad (2.18)$$

For $b = 3$ one obtains

Card 3/6

On strict solutions of the equations ...

$$\frac{a}{a_0} = \left[\frac{p\sin 2(\eta - \epsilon_0) + \sin\eta}{p\sin 2(\eta_0 - \epsilon_i) + \sin\eta_0}\right]^{1/2} \prod_{i=1}^{4} \left|\frac{tg\frac{\eta - \eta_0}{2} - tg\frac{\eta_i - \epsilon_0}{2}}{tg\frac{\eta_0 - \epsilon_0}{2} - tg\frac{\eta_i - \epsilon_0}{2}}\right|^{-2B_i \, ctg\, \epsilon_0} \qquad . \quad (2.11)$$

where

$$B_i = \frac{\cos\eta_i \cdot \sec^2\frac{\eta_i - \epsilon_0}{2}}{2\left[2p\cos 2(\eta_i - \epsilon_0) + \cos\eta_i\right]} \qquad , \quad (2.12)$$

For arbitrary odd b = 2m+1 one uses again (2.4) as well as the representation

$$\sin 2m(\eta - \epsilon_0) \cdot \sec^{4m}\frac{\eta - \epsilon_0}{2} = Q_{4m-1}\left(tg\frac{\eta - \epsilon_0}{5}\right) \qquad (2.27)$$

where Q_{4m-1} is a polynomial of (4m-1)-th degree. Then the integral attains the form

Card 4/6

On strict solutions of the equations ... C111/C444

$$I = \int_{z_0}^{z} \frac{2[\cos \mathcal{E}_0 (1-z^2) - \sin \mathcal{E}_0 2z] (1+z^2)^{2m-2}}{pQ_{\ell,m-1}(z)+(1-z^2)(1+z^2)^{2m-1} \sin \mathcal{E}_0 +2z(1+z^2)^{2m-1}\cos \mathcal{E}_0} dz \quad (2.29)$$

and is integrated by aid of decomposition into partial fractions (as in the case of $b = 3$). If $b = 2m + 2$, then (2.18) and

$$\frac{\sin n\varphi}{\cos^n \varphi} = Q_n(tg \varphi) \qquad (2.31)$$

is used.
At the end it is stated that the curve is always convex with respect to the straight line which connects object and target.

There are 2 Soviet-bloc and 2 non-Soviet-bloc references. The two references to English language publications read as follows:

Card 5/6

S/140/62/000/001/004/011
C111/C444

On strict solutions of the equations ...

H. Spitz: Partial navigation courses for a guided missile attacking a constant velocity target. Naval Research Laboratory, USA, 1946;
A. Locke: Guidance, New York, 1955.

SUBMITTED: May 4, 1959

Card 6/6

FRAZHNICHENKO, Nikolay Arsen'yevich; KAN, Veniamin Lipmanovich;
    MINTSBERG, Beniamin L'vovich; MOROZOV, Valentin Ivanovich;
    BUTENIN, N.V., doktor tekhn. nauk, prof., retsenzent;
    NIKITIN, N.N., kand. fiz.-mat. nauk, retsenzent; ZAKHAREVICH,
    A.F., nauchnyy red.; SMIRNOV, Yu.I., red.; TSAL, R.K., tekhn.
    red.

    [Problems on theoretical mechanics]Sbornik zadach po teoreti-
    cheskoi mekhanike. Leningrad, Sudpromgiz, 1962.   559 p.
                                        (MIRA 16:1)
            (Mechanics, Analytic--Problems, exercises, etc.)

KAN, V. L.

Evaluating errors of compound instruments (sets). Trudy inst.
Kom. stand. mer i izm. prib. no.57:7-9 '62.
(MIRA 15:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii
im. D. I. Mendeleyeva.

(Measuring instruments)

KAN,V.L.;KEL'ZON,A.S. (Leningrad)

"Some new problems of proportional navigation"

report presented at the 2nd All-Union Congres on Theoretical
and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64.

L 3078-66   EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(1)
AM5026186   BOOK EXPLOITATION   UR/
                                                             656.6   56
                                                                      B+1

Kan, Veniamin Lirmanovich; Kel'zon, Anatoliy Saulovich

Theory of proportional navigation (Teoriya proportsional'noy navigatsii)
Leningrad, Izd-vo "Sudostroyeniye", 1965. 423 p. illus., biblio. 1,800
copies printed.

TOPIC TAGS: automatic control theory, navigation system, proportional navigation,
trajectory determination, aerospace structure, motion mechanics, motion stabi-
lity, solid kinematics

PURPOSE AND COVERAGE: This book is a study of the symmetrical motion of the
relatively linear axis of a solid body converging with a moving point by means
of proportional convergence. The book presents the theory of proportional
navigation in its present state based on data of Soviet and foreign science
as well as on studies made by the authors. Problems of kinematics, dynamics,
stability of motion and of automatic control by proportional convergence are
viewed. The book is recommended for engineers and scientists specializing in
the field of automatic control of motion. Also it would be useful for students
in shipbuilding and aviation institutes as well as for students in mechanical-
mathematical and physical-mechanical departments of corresponding universities.
Card 1/3

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TABLE OF CONTENTS (abridged):

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AP5026186

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Appendix — 413

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SUB CODE: ME, NC

NO REF SOV: 018

SUBMITTED: 04Jun65

OTHER: 016

Card 3/3

L 9378-66   EWT(d)/FBD/FSS-2/EWT(1)/FS(v)-3/SEC(k)-2/EWA(d)/T-2   IJP(c)
ACC NR: AP5026920   GW/BC/WR   SOURCE CODE: UR/0373/65/000/005/0047/0055

AUTHORS: Kan, V. L.; Kel'zon, A. S.

ORG: none

TITLE: Solution of a pursuit problem

SOURCE: AN SSSR. Izvestiya. Mekhanika, no. 5, 1965, 47-55

TOPIC TAGS: ship navigation, tracking system, spacecraft tracking, differential equation

ABSTRACT: It is desired to determine analytical expressions describing trajectories which a moving object (e.g., a ship) can follow in order to intercept another object moving with given uniform velocity. Using the method of proportional navigation (H. Spitz. Partial navigation courses for a guided missile attacking a constant velocity target. Naval Research Laboratory, USA, 1946), the problem is solved for general values of the navigational constant b (i.e., $b \neq 2$). Solutions of the differential equations of motion are discussed with regard to questions of stability and whether or not interception is achieved for a given set of initial parameters. Exact solutions are obtained in a number of examples, and the effect of the velocity ratio p ($p = v/v^0$, where v^0 is the velocity of the uniformly moving object, and v the

Card 1/2

L 9378-66
ACC NR: AP5026928

velocity of the pursuer) is investigated. The work is a continuation of previously published research of V. L. Kan and A. S. Kel'zon, (Issledovaniye obshchey zadachi proportsional'nogo sblizheniya. Nauchn. tr. Ministerstva Morskogo flota SSSR, Izd-vo "Morskoy transport", 1964, No. 1). Orig. art. has: 5 figures and 64 formulas.

SUB CODE: 17, 01/   SUBM DATE: 18Jan65/   ORIG REF: 005/   OTH REF: 002

Card 2/2

L 39404-66   EWT(d)/EWT(l)/EWP(m)/EWA(d)   GW/GD

ACC NR: AP6002306   (N)   SOURCE CODE: UR/0141/65/008/006/1229/1243

AUTHOR: Kan, V. L.; Kel'zon, A. S.

ORG: none

TITLE: Qualitative investigation of the trajectory in proportional navigation

SOURCE: IVUZ. Radiofizika, v. 8, no. 6, 1965, 1229-1243

TOPIC TAGS: navigation, proportional navigation

ABSTRACT: Suggested by H. Spitz, the method of proportional navigation (Naval Res. Lab, USA Report, 1946) involves this set of equations for straight-line motion of point A:

$$\dot{\psi} = b\dot{\eta},$$
$$\dot{a} = v_s \cos\eta - v \cos\gamma,$$
$$a\dot{\eta} = v \sin\gamma - v_s \sin\eta.$$

Here, a is the range (distance A—B), η is the angle of the line of sight, ψ is the angle of B velocity vector, γ is the lead angle, and b is the navigational constant; v_s and v are the velocities of points A and B, respectively. The problem is to find the relative trajectory of B assuming that both velocities are constant. The closed solution of the above set of equations can be represented by the roots of $f(\eta)$; however, such roots essentially depend on

Card 1/2   UDC: 531.1:656.6

KIM, V. L.   Cand Tech Sci

Dissertation: "Technology of Spinning
Synthetic Staple Fiber on Silk-Spinning
Equipment."

30/11/50

Moscow Textile Inst.

SO Vecheryaya Moskva
      Sum 71

KAN, V. M.

Silk Manufacture

Method for selecting samples of silk noils. Tekst. prom. 12 No. 9, 1952.

Monthly List of Russian Accessions, Library of Congress, December 1952. Unclassified.

KAN, V.M., kandidat tekhnicheskikh nauk.

Redesign of the drawerhead on a roving machine for silk. Tekst.
prom. 16 no.8:48-50 Ag '56.   (MLRA 9:10)

(Silk manufacture) (Spinning machinery)

KAN, V.M., kand. tekh. nauk.

Using the ONR-TsNIKhBI device to test sliver evenness. Tekst. prom.
18 no.11:36 N '58.   (MIRA 11:12)
              (Carding) (Testing machines)

KAN, V.S., inzh.

Deriving the formula of the theoretic operative capacity of a gin saw. Sbor.nauch.-issl.rab.TTI no.12:51-58 '61.   (MIRA 15:11)
(Cotton gins and ginning--Equipment and supplies)

KAN, V.Ya.

Problems of builders in the development of a technical and material basis for farming. Prom.stroi. 42 no.7:2-4 '65.

(MIRA 18:8)

1. Chlen kollegii Gosstroya SSSR.

BESSER, Ya.R., inzhener; KAN, V.Ya., inzhener.

Evaluation of the various methods of concreting down-apron blocks.
Gidr.stroi. 23 no.8:4-9 '54.   (MLRA 8:1)
     (Hydroelectric power stations) (Reinforced concrete construction)

KAN, Ya. S.

Calculation of tanks for transport of low-boiling lique-
fied gases. Ya. S. Kan. *Avtoged* 4, No. 1/2. 80 4(1047).
A method is suggested for calcg. the optimum thickness
of the lagging of tanks for transport of liquefied gases,
ensuring adequate insulation without waste of space.
The tank is assumed to possess a cylindrical shape with
spherical ends, the calcn. being carried out separately
for the cylindrical and the spherical parts. The thick-
ness of the lagging should not exceed 40% of the outside
radius of the container, and it may be possible to reduce
it to 15%.
                                                    B. A.

Charms An. KAN, Ya. S.
1941

Some particularities of the transition into the superconducting state. I. A. A. Galkin, Ya. S. Kan, and B. G. Lazarev (Phys.-Tech. Inst., Acad. Sci. Ukr. S.S.R., Kiev). Zhur. Eksptl. Teoret. Fiz. 20, 865-76(1950); cf. C.A. 45, 487g.—On continuous lowering of the temp. at the uniform rate of 0.0010°/min. in the vicinity of 3.7°K., a 0.03-mm.-diam., nearly-single-crystal wire of pure Sn, annealed at 100°, showed fluctuations of the elec. resistance, with, first, sharp variations by 20-30% and returns to the normal value, and later a fall by 60-70% which, on very slow cooling, is resolved into a series of fluctuations. The resistance then goes back to normal for a last time, and from then on the amplitude of the fluctuations decreases progressively. There are a few sharp peaks at 0.003° below the beginning of the fluctuations. A similar picture is obtained on heating. With a magnetic field applied parallel to the axis of the wire, the curve is step-shaped, with level portions instead of peaks. Only at a sufficiently high magnetic field strength is there a sharp fall from the normal into the superconducting state, occurring within a temp. interval as narrow as 0.000009°. In a magnetic field perpendicular to the axis of the wire, the peaks and the steps disappear, and the whole curve becomes saw-shaped. Similar curves are found, without magnetic field, with wires strained by drawing, and with an unannealed wire of Ta. The observed discontinuities of the change of the elec. resistance are not due to fluctuations of the temp., nor to statistical fluctuations of the temp. Transition into the superconducting state begins with the formation of thread-shaped nuclei of the superconducting phase, oriented parallel to the current and thus causing a marked fall of the elec. resistance. On further lowering of the temp., these threads evidently coagulate, giving rise to a particular transition state. The step-shaped curve in a longitudinal magnetic field is apparently due to supercooling. In a transverse magnetic field, the saw-shaped form of the curve results from a superposition of a no. of sep. transitions taking place in small vols. of the sample. From the exptl. curves, in the absence of a magnetic field, the rate of growth of the nuclei of the superconducting phase can be estd. to a few mm./sec. II. A. A. Galkin, B. G. Lazarev, and P. A. Bezuglyi (Phys.-Tech. Inst., Acad. Sci. Ukr. S.S.R., Kiev). Ibid. 987-94; cf. C.A. 45, 4970a. The velocity v of the displacement of the boundary between the normal and the superconducting states was detd. in 2 independent ways. One method consisted in oscillography of the voltage E at the terminals of the secondary coil of a transformer with a superconducting core; the E induced in the coil depends both on the rate of change of the magnetic field H and on v. If the perturbation of the superconducting state begins at the periphery and v is a function of the radius r, then $E(t) = -(2\pi S H/c)[v + (v/\pi r)]$, where $v =$ frequency, $v = dr/dt$, and $S =$ cross-section area of the sample; v is thus obtained from the peak of the voltage obtained in the process of the perturbation. The detns. were made on samples of Hg and Sn 8-10 cm. long, 0.4-1.0 mm. in diam., enclosed in glass envelopes 0.05 mm. thick. Expts. showed that at the instant of the perturbation, E is several times as great as in the normal state; hence, $E(t)/E_0 = 1 + [v(r)/v\pi r] = k$, and $v(r) > 2.5 \times 10^{-4} \times 10^{4} \sim 10^{4}$ cm./sec. On the other hand, from the length of the impulse, on the assumption of complete disturbance in the transition process, $v = r/\Delta r = 5 \times 10^{-4}/2 \times 10^{-4} = 2 \times 10^{4}$ cm./sec. The depth of penetration δ of the disturbance of the supercond. is evidently smaller than the depth of penetration of the magnetic field into a metal in the normal state, owing probably to inhibition effects at the boundary between the 2 states. To est. δ, an a.c. of acoustic frequency was sent through a coil wound around a ring of Sn so as to create an addnl. magnetic field parallel to the current flowing along the surface of the ring. The max. induced current is $I_0 = Hr/2$, where $H =$ crit. magnetic field, $r =$ radius of the superconducting cross-section of the sample; with the superconducting state disturbed to a depth δ, the current becomes $I = H(r - \delta)/2$, and hence I can be detd. from $I/I_0 = 1 - (\delta/r)$. The

(over)

e.g. some amt. of free FeO or MnO, the presence of impurities favoring decompn. of FeCr$_2$O$_4$ to FeO + Cr$_2$O$_3$, or to formation of solid solns. of C in Fe. The latter factor can, at the limit, raise ΔH by 8400 cal./mole, and consequently raise log p_{CO} by ~1270/T, sufficient to account for the discrepancies. (3) For the 2nd step, Cr$_2$O$_3$ + 3C = 2Cr + 3CO, $\Delta H = \Delta H° - 5.309 T - 1.164 \times 10^{-3}$ $T^2 - 5.463 \times 10^5 T^{-1}$. By crit. analysis of available data, the heat of formation of Cr$_2$O$_3$ at 298°K. is taken = -268,000 ± 600 cal./mole. Hence, $\Delta H° = 191,836$, and $\Delta F° = 191,836 + 5.309 T \ln T + 1.164 \times 10^{-3} T^2 - 2.747 \times 10^5 T^{-1} - 109.53 T$, and $\frac{1}{2} \log K_p \sim \log p_{CO} = -(13,977/T) - 0.9 \log T - 0.0848 \times 10^{-3} T + 0.3 \times 10^5 T^{-1} + 12.33$. The equil. pressure of CO should, consequently, be 1 atm. at 1350°K. Actually, under 1 atm., Cr$_2$O$_3$ is reduced at a lower temp., owing to formation of Cr carbides. (4) For the carbide formation Cr$_2$O$_3$ (solid) + $^{14}/_3$ C = $^1/_3$ Cr$_7$C$_3$ (solid) + 3CO (gas), $\Delta H = 176,070 - 0.503 T - 3.413 \times 10^{-3} T^2 - 3.87 \times 10^5 T^{-1}$, hence $\Delta F° = 176,070 + 0.503 T \ln T + 3.413 \times 10^{-3} T^2 - 1.935 \times 10^5 T^{-1} - 138.12 T$, or $\frac{1}{3} \log K_p \sim \log p_{CO} = (12,830/T) - 0.0097 \log T - 0.282 \times 10^{-3} T + 0.141 \times 10^5 T^{-1} + 10.1$. Exptl. detns., with pure Cr$_2$O$_3$ and pure graphite gave, at $T = 1183, 1223, 1253, 1303, 1323°K., p_{CO} = 0.025, 0.0568,$ 0.0947, 0.2487, 0.3815 atm.; the product was identified as Cr$_7$C$_3$ by x-ray diffraction. The exptl. data lead to a correction of the last term of the calcd. equation from 10.1 to 5.806. Equally applicable is the simpler empirical equation log $p_{CO} = -(12,700/T) + 9.14$. (5) By the same procedure, there is found for the carbide formation: Cr$_2$O$_3$ + $^9/_4$ Cr$_7$C$_3$ = $^{11}/_4$ Cr$_7$C$_3$ + 3CO, log $p_{CO} = (-14,825/T) - 3.87 \log T + 0.29 \times 10^{-3} T + 1.27 \times 10^5 T^{-1} + 21.68$; for Cr$_2O_3$ + $^{11}/_4$ Cr$_7$C$_3$ = $^9/_4$Cr$_4$C + 3CO, log $p_{CO} = (-16,368/T) - 1.7 \log T + 0.018 \times 10^{-3} T + 0.170 \times 10^5 T^{-1} + 14.21$; and for Cr$_2O_3$ + 3Cr$_4$C = 14Cr + 3CO, log $p_{CO} = (-17,754/T) - 2.57 \log T + 0.42 \times 10^{-3} T + 0.238 \times 10^5 T^{-1} + 16.608$. The corresponding simplified two-term empirical equations for these 3 equilibria, obtained by graphic averaging, are, resp., log $p_{CO} = (-13,256/T) + 8.818$; $(-15,454/T) + 8.22$; and $(-17,162/T) + 8.604$. (6) The reduction of Cr$_2$O$_3$ proceeds differently in the presence and in the absence of carbides. The highest p_{CO} corresponds to the carbide Cr$_7$C$_3$, the lowest to Cr$_4$C, with the p_{CO} for the reaction Cr$_2$O$_3$ + 3C = 2Cr + 3CO lying in between.   S. Thon.

KAN, YA. S.

USSR/Atomic and Molecular Physics - Low-Temperature Physics   D-5

Abs Jour   : Ref Zhur - Fizika, No 1, 1958, 789

Author   : Galkin, A.A., Kan, Ya.S., Lazarev, B.G.

Inst   : Physical-Technical Institute, Academy of Sciences, Ukrainian, SSR.

Title   : Discontinuous Attenuation of Current in a Superconducting Ring.

Orig Pub   : Zh. eksperim. i teor. fiziki, 1957, 32, No 6, 1582

Abstract   : An investigation was made of the character of the appearance of resistance in a superconducting lead ring carrying induced current under gradual heating. A measuring coil with 800 turns of copper wire was placed inside a ring of radius 1 cm made of wire 1 mm in diameter. Rotation of the coil about an axis located in the plane of the ring made it possible to measure the total current

(Card 1/2

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S/181/62/004/003/037/045
B108/B104

AUTHORS: Kan, Ya. S., and Polyakov, L. M.

TITLE: Method of determining the tangential stresses in a medium
            under high pressure

PERIODICAL: Fizika tverdogo tela, v. 4, no. 3, 1962, 810-811

TEXT: A method of determining tangential stresses in a solid compressed
by solids is described. It is based on determining these stresses for
standard single crystals which at relatively low tangential stress show
traces of residual deformation. From the stress – strain diagrams of the
standards compressed under hydrostatic conditions one can then find the
tangential stresses in any specific case by determining the difference
between the hydrostatic traces and those obtained by compression between
solids. By this method it is also possible to determine the solidifica-
tion point of a liquid. There are 1 figure and 1 table. The English-
language references are: J. T. Stevart. Phys. Rev., $\underline{97}$, 578, 1955; C. A.
Swenson. Phys. Rev., $\underline{99}$, 423, 1955.

Card 1/2

Method of determining the tangential ...   S/181/62/004/003/037/045
                                             B108/B104

ASSOCIATION: Fiziko-tekhnicheskiy institut AN USSR, Khar'kov (Physico-
              technical Institute AS UkrSSR, Khar'kov)

SUBMITTED: November 30, 1961

Card 2/2

KAN, YA. S.

AUTHORS: Grigor'yev, V.N., Kan, Ya.S., Rudenko, N.S.,   56-3-4/59
Safronov, B.G.

TITLE: Variation of Isotopic Composition of Evaporated Mercury.
(Izmeneniye izotopicheskogo sostava rtuti pri isparenii)

PERIODICAL: Zhurnal Eksperim. i Teoret. Fiziki, 1957, Vol. 33, Nr 3,
pp. 576-580 (USSR)

ABSTRACT: The variation of the isotopic ratio of the isotopes Hg-198 to
Hg-204 was determined in the most different evaporation para-
meters (e.g.t from 7o to 270° C) by means of the mass spectrometers
MC-2 and MC-4. It was determined that a low evaporation velocity
exercises a special influence on the evaporation kinetics.

The relative vapor pressure difference between the isotopes
Hg-198 and Hg-204 can be given from the results:
for $t = -20°$ C $\Delta p/p \leq 2.10^{-3}$
for $t = 200°$ C $\Delta p/p \leq 8.10^{-4}$
There are 4 figures, 3 tables, and 4 Slavic references.

ASSOCIATION: Physical-Technical Institute AN of the Ukrainian SSR
(Fiziko-tekhnicheskiy institut Akademii nauk Ukrainskoy SSR)

SUBMITTED: March 13, 1957

AVAILABLE: Library of Congress

Card 1/1

L 2092-66   EWT(d)/EWP(1)   IJP(c)   BB/GG
ACCESSION NR: AP5023273

UR/0302/65/000/003/0033/0034
621.374.328:537.312.62

AUTHOR: Kan, Ya. S. (Candidate of physico-mathematical sciences); Rakhubovskiy, V. A.

TITLE: Multiple-winding cryotron — a general-purpose logic element

SOURCE: Avtomatika i priborostroyeniye, no. 3, 1965, 33-34

TOPIC TAGS: cryogenic circuit, cryotron logic circuit, computer technology

ABSTRACT: If an extra bias winding is added to a cryotron with multiple windings, the element may perform logical operations. Depending on the relative direction and the magnitude of the control and bias currents, the modified cryotron may perform OR, EXCLUSIVE OR, AND, NOR, and NAND operations. The last two are the most practicable. A 4-bit adder using 3-winding lead-tin cryotrons was constructed and tested at the Physicotechnical Institute, Academy of Sciences UkrSSR. Adder speed was increased by a factor of two over the normal. The cryotrons used had time constants of 250 μsec at an ambient temperature of 3.6K. The bias and control currents were 250 mamp ± 20%. Orig. art. has: 3 figures.   [BD]

ASSOCIATION: none
Card 1/2

L 2092-66
ACCESSION NR: AP5023273

SUBMITTED: 00   ENCL: 00   SUB CODE: DP, EC

NO REF SOV: 000   OTHER: 000   ATD PRESS: 4113

Card 2/2

ARTEMENKO, I.A.; KAN, Ya.S.; RABUKHIN, L.B.

Static characteristics of cryotrons. Ukr. fiz. zhur. 10
no.9:1035-1036 S '65.   (MIRA 18:9)

1. Institut kibernetiki AN UkrSSR, Kiyev, 1 Fiziko-tekhnicheskiy
institut AN UkrSSR, Khar'kov.

L 4966-66   EWT(1)/EWA(h)

ACC NR: AP5026972   SOURCE CODE: UR/0103/65/026/010/1884/1886

AUTHOR: Kan, Ya. S. (Khar'kov); Rakhubovskiy, V. A. (Khar'kov)

ORG: none

TITLE: The use of cryotron converters in studies of cryotron circuits

SOURCE: Avtomatika i telemekhanika, v. 26, no. 10, 1965, 1884-1886

TOPIC TAGS: voltage converter, cryotron converter, cryotron circuit, switching time

ABSTRACT: A cryotron converter of constant low voltages of the order of 10^{-5} v into variable voltages of the order of 10^{-2} v is described. Basically, the converter consists of a cryotron oscillator and a cryotron connected in parallel to the input of the oscillator (see Fig. 1). The converter was used to determine both the static
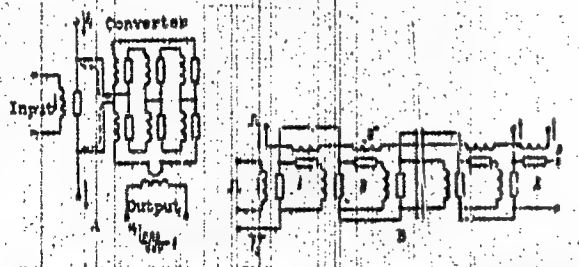
Fig. 1. Cryotron converter (A) and cryotron circuit (B)

Card 1/2   UDC: 621.374.328:537.312.62

ACC NR: AP5026972

time constant τ of an elementary cryotron cell and the switching time of some of the simplest cryotron circuits. The average switching time of a single cryotron cell for supply currents ranging from 230 to 330 mamp depended only slightly on current. For example, for a current of 280 mamp, average switching time was 100 µsec. Thus, it was experimentally demonstrated that the static time constant τ of elementary cryotron cells for a wide range of currents can be used to determine the switching time of cryotron circuits. Orig. art. has: 4 figures.   [JR]

SUB CODE: EC/ SUBM DATE: 18Sep64/ OTH REF: 003/ ATD PRESS: 4137

Card 2/2

L 21394-66   EWT(1)/EWA(h)

ACC NR: AP6007848   SOURCE CODE: UR/0120/66/000/001/0221/0222

AUTHOR: Kan, Ya. S.; Rakhubovskiy, V. A.

ORG: Physicotechnical Institute, AN UkrSSR, Kharkov (Fiziko-tekhni-
cheskiy institut AN UkrSSR)

TITLE: Cryotron relaxation oscillator with frequency oscillator

SOURCE: Pribory i tekhnika eksperimenta, no. 1, 1966, 221-222

TOPIC TAGS: cryogenic circuit, ammeter, relaxation oscillator

ABSTRACT: The relaxation oscillator shown in the figure is based on
two-winding lead-tin cryotrons. The nominal output frequency of the
oscillator is established by the gate current (terminals 7) and may be
varied by the application of the control current (terminal 14). Since
the control current flows through superconducting wires, the oscil-
lator may be used as an ammeter for superconducting circuits. The
current to be measured will change the output frequency of the
oscillator by an amount linearly related to the magnitude of the
control (measured) current. The cryotrons used in the circuit have
$R = 10^{-4}$ ohm and $L = 10^{-8}$ h. The sensitivity of the circuit is

Card 1/2   UDC: 537.312.62:621.373.43
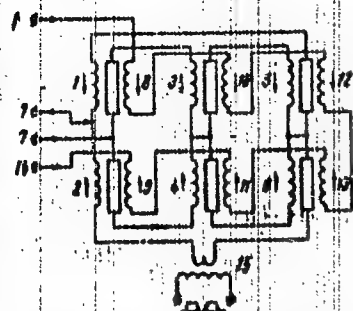
L 21394-66
ACC NR: AP6007848

Fig. 1. Cryotron relaxation oscillator

given as 1 mamp/cps in the range of 50 mamp. Both the sensitivity
and the range may be varied by changing the density of the control
windings. Orig. art. has: 3 figures.   [BD]

SUB CODE: 09/ SUBM DATE: 24Jan65/ OTH REF: 002/ ATD PRESS:4/221

Card 2/2 UuR

L 37926-66   EWT(d)/EWT(1)/EWT(m)/EWP(v)/EWP(t)/ET1/EWP(k)/EWP(h)/EWP(1)   JD

ACC NR: AP6022044   SOURCE CODE: UR/0120/66/000/003/0228/0229

AUTHOR: Kan, Ya. S.; Rakhubovskiy, V. A.

ORG: Physico-Technical Institute, AN UkrSSR, Khar'kov (Fiziko-tekhnicheskiy institut AN UkrSSR)

TITLE: Cryotron relaxation oscillator as a thermometer

SOURCE: Pribory i tekhnika eksperimenta, no. 3, 1966, 228-229

TOPIC TAGS: thermometer, cryotron, relaxation oscillator

ABSTRACT: A possibility is demonstrated of using the cryotron relaxation oscillator as a liquid-He thermometer. As the frequency of a cryotron relaxation oscillator (such as described by M. L. Cohen et al., Proc. IRE, 1960, 9, 1575) operated at a constant current depends on the ambient temperature, the oscillator can serve as a low-temperature thermometer. The sensitivity of such a thermometer proved to be about 0.0003K/cps in the neighborhood of 3.5K. A formula is developed for calculating the liquid-He temperature from the observed frequency of the relaxation oscillator. Orig. art. has: 2 figures, 1 formula, and 1 table.   [03]

SUB CODE: 20, 09 / SUBM DATE: 03Jun65 / ORIG REF: 000 / OTH REF: 001

Card 1/1   UDC: 621.374.328:537.312.62:536.5

L 44002-66   EWT(J)/EWT(1)/EWT(7)/EWP(k)/EWP(h)/EWP(1)   BC

ACC NR: AP6029946   SOURCE CODE: UR/0413/66/000/015/0111/0111

INVENTOR: Artemenko, I. A.; Voytovich, I. D.; Kan, Ya. S.; Rakhubovskiy, V. A.

ORG: none

TITLE: A counter based on cryotrons. Class 42, No. 184525 [announced by the Institute of Cybernetics, AN SSSR (Institut kibernetiki AN SSSR); Physicotechnical Institute, AN SSSR (Fizikotekhnicheskiy institut AN SSSR)]

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 111

TOPIC TAGS: pulse counter, cryogenic circuit

ABSTRACT: A cryotron pulse counter consisting of a control, memory, starting, and an input circuit is described. The memory circuit (see Fig. 1) contains two cryotrons
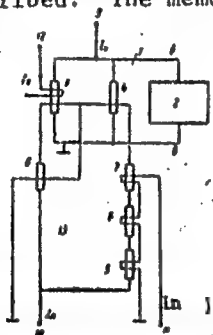

Fig. 1. A cryotron counter

1 - Memory circuit; 2 - cryotron generator; 3-8 - cryotrons; 9-12 - terminals; 13 - control circuit.

Card 1/2   UDC: 681.142.07

ACC NR: AP6029946

connected in parallel to the superconducting circuit containing the cryotron genera-
tor control coil and to the current source from the starter circuit. The control
circuit has two parallel arms, each containing a control coil for the memory circuit
cryotrons. One of these branches also includes a cryotron whose control coil is con-
nected between a current source and the control circuit. The other branch consists
of a group of cryotrons with a common control coil which serves as the counter input
terminal. This arrangement achieves economy and assures that the counter is able to
operate as an accumulator. Orig. art. has: 1 figure.   [BD]

SUB CODE: 09/ SUBM DATE: 25Mar64/ ATD PRESS: 5070

Card 2/2   blg

ACC NR: AP7004264   (A)   SOURCE CODE: UR/0432/66/000/003/0019/0023

AUTHOR: Kan, Ya. S. (Candidate of physico-mathematical sciences);
Mikhaylov, G. S. (Candidate of technical sciences); Rakhubovskiy, V. A.

ORG: none

TITLE: A model of a cryotron digital computer with programmed control

SOURCE: Mekhanizatsiya i avtomatizatsiya upravleniya, no. 3, 1966,
19-23

TOPIC TAGS: cryogenic computer, computer design

ABSTRACT: A small-scale model of a cryotron computer was built and
tested at the Physico-technical Institute of the Academy of Sciences
UkrSSR. The model contained only essential blocks such as the arith-
metic unit, number memory unit, instruction memory with machine halt
unit, control unit, and an I/O unit. The model could add, subtract,
and multiply 4-bit (including sign bit) words in fixed-point notation.
Instructions were of the three-address type, and the memory unit was
random-access. The computer was built using 504 lead-tin wire cryo-
trons mounted on micarta cards. Three tests lasting 11, 17, and 21
hours were made during which every 3 hours the machine was stopped

Card 1/2

ACC NR: AP7006773   SOURCE CODE: UR/0102/66/000/006/0065/0069

AUTHOR: Vcytovych, I. D. -- Voytovich, I. D. (Kiev-Khar'kov); Kan, Ya. S. (Kiev-
-Khar'kov); Rakhubovs'kyy, V. A. -- Rakhubovskiy, V. A. (Kiev-Khar'kov)

ORG: none

TITLE: Analysis of a cryotron memory circuit with many stable states

SOURCE: Avtomatyka, no. 6, 1966, 65-69

TOPIC TAGS: memory access technique, electromagnetic memory, digital system, digital
analog converter, cryotron-circuit electronic circuit

ABSTRACT: A cryotron memory cell which determines the number of pulses fed to its in-
put by the value of the current persisting in it, was designed (see Fig. 1). In Fig.
1, K_1 and K_2 are working cryotrons; K_3 is the indicating cryotron; L_1 and L_2 are induc-
tances of arms $abcd$ and $aefd$, respectively (it is set that $L_1 = L_2 = L$); L_3 is the
inductance of arm $akld$; R_1 and R_2 are resistivities of cryotron tubes K_1 and K_2 in
normal state (it is set that $R_1 = R_2 = R$). The transistory processes were analyzed,
and the dependence of the number of states from the mesh current $I_0^{(0)}$, when $\beta = 0.81$,
$i_{cr}^{(1)} = 150$ ma, and $T = 3.6°K$ was calculated and tabulated; here,

$$\beta = \frac{L_3}{L_3 + L}.$$

Card 1/2

ACC NR: AP7006773

The theoretical analysis of the cell's operation is in good agreement with the experimental data. One of the suggested applications is in a cryotronic pulse counter operating as a digital-to--analog converter (converting the number of input pulses into the resistivities of the cryotron tube K_3, or its grid current). Orig. art. has: 5 formulas, 3 figures, 2 tables.
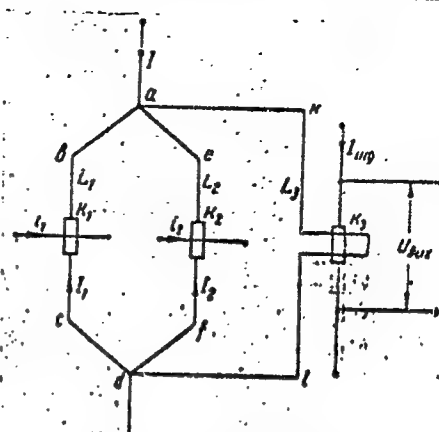
Fig. 1. Block diagram of the basic cryotron cell.

SUB CODE: 09/ SUBM DATE: 23Oct65/ ORIG REF: 001/ OTH REF: 002

Card 2/2

L 3910-66 EWT(1)
ACCESSION NR: AP5024134   UR/0185/65/010/009/1035/1036

56
B

AUTHOR: Artemenko, I. A.; Kan, Ya. S.; Rabukhin, L. B.

TITLE: Static characteristics of cryotrons

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 9, 1965, 1035-1036

TOPIC TAGS: cryotron, superconductivity

ABSTRACT: This note presents the results of the experimental determination of transfer characteristics of a thin unscreened cruciform cryotron shown in Fig. 1 of the Enclosure. Curve 1 is obtained following the usual potentiometric method during a constant 10^{-6} V voltage across the valve; curve 2 is obtained by the current method of small resistance measurements with a constant minimum resistance of $R_{min} = (1.03 \pm 0.01) \cdot 10^{-9}$ ohm. Results show that the small slope of the characteristics for small valve currents is caused by the particular method of measurement only. The second method for the determination of characteristics is the more accurate one. Orig. art. has: 1 figure.

ASSOCIATION: Instytut kibernetyky AN URSR, Kiev (Institute of Cybernetics, AN Ukr. SSR); Fizyko-tekhnichnyy instytut AN URSR, Khar'kov (Physics-Engineering Institute, AN Ukr. SSR)

Card 1/3

L 3910-66
ACCESSION NR: AP5024134

SUBMITTED: 09Jun65   ENCL: 01   SUB CODE: EE, TP

NO REF SOV: 004   OTHER: 000

Card   2/3

L 3910-66
ACCESSION NR: AP5024134   ENCLOSURE: 01
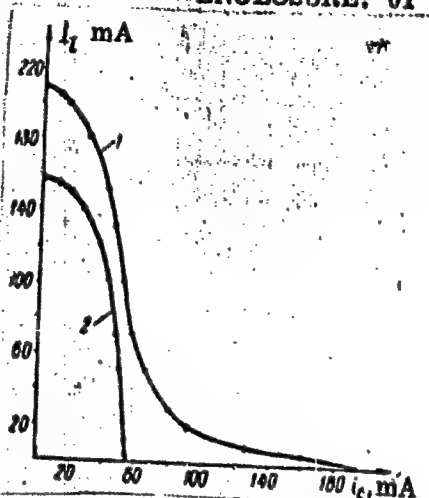
Figure 1. Valve current versus control grid current in a cryotron. Sn valve 2 mm wide, 5000 Å thick, control grid 0.15 mm wide, and 1000 Å thick, SiO insulation layer 7500 Å thick, critical temperature of the Sn membrane 3.8K; working temperature 3.69K.

Card   3/3

ALADATOV, G.M.; KAN, Yo.K.

New data on the geological structure, and oil and gas potentials
of the northern part of the Fergana Valley. Geol.nefti i gaza   3
no.5:19-22 My '59.   (MIRA 12:7)

1. Krasnodarskiy filial Vsesoyuznogo neftegazovogo nauchno-issledovatel'-
skogo instituta i Neftepromyslovoye upravleniye Kirgizneft'.
                    (Fergana--Petroleum geology)
                    (Fergana--Gas, Natural--Geology)

KAN, Ye.K.

Results of gas prospecting in northern fergana (Kirghizistan).
Gaz.prom. 4 no.10:1-3 O '59.   (MIRA 13:2)
        (Fergana--Gas, Natural--Geology)

SOKOLOV, I.P.; KAN, Ye.K.; ROZANOV, N.M.; SHMELEV, I.A.

Trends in further oil and gas prospecting in the Fergana
Valley. Geol.nefti i gaza 3 no.12:13-16 D '59.
(MIRA 13:4)

1. Ferganskiy neftyanoy kombinat Kirgizneft' i Vsesoyuznyy
nauchno-issledovatel'skiy geologo-razvedochnyy neftyanoy
institut (VNIGNI).
          (Fergana—Petroleum geology)
          (Fergana—Gas, Natural—Geology)

VASIL'YEV, Yu.M.; GIBSHMAN, N.B.; KAN, Ye.K.; KOPTEL'TSEV, A.A.;
LI, K.A.; CHARYGIN, M.M.

Initial results of super-deep drilling in the Caspian Lowland.
Trudy MINKhiGP no.43:213-217 '63.   (MIRA 17:4)

ZLIZINA, A.G.; KAN, Ye.K.

Outlook for finding oil and gas pools in sediments overlying salt
deposits in the Volga-Ural interfluve. Geol. nefti i gaza 7 no.6:
8-14 Je '63.   (MIRA 16:9)

1. Trest Ural'skneftegazrazvedka i Kazakhskiy politekhnicheskiy
institut.

LI, K.A.; KAN, Ye.K.; GORBACHEVA, V.P.; FILIICHUK, B.A.

New data on the geological structure of the northern borderland
of the Caspian lowland and prospects of its gas and oil content.
Geol. nefti i gaza 9 no.1:16-28 Ja '65.

(MIRA 18:3)

KAN, Ye. L.

"Date Relating to the Study of the Influence of the Nervous System on the Composition of the Blood." Cand Med Sci, Inst of Physiology, Acad Sci USSR, Leningrad, 1953. (RZhBiol, No 1, Sep 54)

SO: Sum 432, 29 Mar 55

KAN, Ye.L.

Development of experimental anemia as a result of denervation
of the spleen. Biul.eksp.biol.i med. 37 no.3:29-33. Mr '54.
(MLRA 7:6)

1. Iz laboratorii fiziologii retseptorov (zav. chlen AMN SSSR
V.N.Chernigovskiy) Insituta fiziologii imeni I.P.Pavlova AN
SSSR, Leningrad.
        (ANEMIA, experimental,
          *eff. of spleen denervation)
        (SPLEEN, physiology,
          *eff. of denervation on exper. anemia)

KAN, Ya.L.

Effect of stimulation of gastric mechanoreceptors on erythrocyte and leukocyte composition of the blood. Biul.eksp.biol. i med. 38 no.8:12-18 Ag '54.   (MLRA 7:9)

1. Iz laboratorii fiziologii retseptorov (zav. deystvitel'nyy chlen AMN SSSR V.N.Chernigovskiy) Instituta fiziologii imeni I.P.Pavlova (dir. akademik K.M.Bykov) AMN SSSR, Leningrad.
        (STOMACH, physiology,
            eff. of stimulation, mechanical, on erythrocyte &
            leukocyte counts.
        (ERYTHROCYTES,
            count, eff. of mechanical stimulation of stomach)
        (LEUKOCYTE COUNT,
            eff. of mechanical stimulation of stomach)

KAN, Ye. L.

USSR/Human and Animal Physiology (Normal and Pathological).   T-3
         Blood. Blood Diseases.

Abs Jour   : Ref Zhur - Biol., No 16, 1958, 74690

Author   : Kan, Ye.L., Vavilin, G.I.
Inst   :
Title   : On the Mechanism of the Development of Experimental
         Anemia Which Appears in Connection with Denervation of the
         Spleen.

Orig Pub   : Arkhiv patologii, 1957, 19, No 2, 61-68.

Abstract   : In chronic tests on 18 cats, denervation (D) of the spleen
         (S) was carried out. In all cases, expressed hypochromic
         normocyotic anemia developed, lasting $1\frac{1}{2}$-7 months. In 14
         cats, the most expressed anemia was noted on the 5-24th
         day. Anemia was caused by strong hemolysis, since after
         D the content of bilirubin in the serum and hemosiderin in
         the S, bone marrow (BM), liver and kidneys did not change.
         In 50% of the cats anemia proceeded with peripheral

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USSR/Human and Animal Physiology (Normal and Pathological).   T-3
Blood. Blood Diseases.

Abs Jour   :   Ref Zhur - Biol., No 16, 1958, 74690

peripheral blood. The number of leukocytes after D increa-
sed by 32-299%, and in one case by 488% (58,700 per 1 mm^3).
In 21 tests on 5 cats with fistula of the stomach and dener-
vated S, the walls of the stomach were stimulated by in-
flation with a rubber balloon. D was conducted in single
animals resulting in the increase of the number of E, in
others to the decrease, and in some to the decrease of the
number of E following their temporary increase. Also in-
significant fluctuations of the number of E were observed,
resembling "spontaneous ones" in intact animals. D of S
has little bearing on the reactiveness of white blood. --
A.D. Beloborodova.

1. Iz gruppy deystvitel'nogo chlena AMN SSSR prof. M. D. Tushinskogo i iz
laboratorii eksperimental'noy patologii (zav.-starshiy nauchnyy sotrudnik
st. G. S. Kan) Leningradskogo instituta tuberkuleza (dir.-prof. A. D. Semenov,
nauchnyy konsul'tant - chlen-korrespondent AN SSSR prof. V. N. Chernigovskiy)

Card 3/3

- 43 -

KAU, Ye. L.

TUSHINSKIY, M.D., STAVSKAYA, V.V., YAROSHEVSKIY, A.Ya., DAVIDENKOVA, Ye.F., SKARLATO, Ye.S., KAU, Ye.L., SKRAYABINA, Ye.A. (Leningrad)

Clinical aspects of the pandemia of influenza in 1957. Klin.med. 36 no.5:43-48 My '58   (MIRA 11:7)
        (INFLUENZA, epidemiology
           . in Russia, pandemia (Rus))

KAN, Ye.L.

Hemopoietic properties of the serum of healthy and anemic animals.
Biul.eksp. biol. i med. 49 no.2:55-61 F '60.   (MIRA 14:5)

1. Iz gruppy deystvitel'skogo chlena AMN SSSR M.D.Tushinskogo i
laboratorii eksperimental'noy patologii i terapii (zav. G.S.Kan)
Leningradskogo instituta tuberkuleza (dir. - prof. A.D.Semenov.
Predstavlena deystvitel'nym chlenom AMN SSSR M.D. Tushinskim.
          (ANEMIA)   (HEMOPOIETIC SYSTEM)

TUSHINSKIY, M.D.; STAVSKAYA, V.V.; BOGORODSKAYA, T.A.; KAN, Ye.L.;
LERMONTOV, V.V. (Leningrad)

Some clinical and diagnostic problems in influenza. Klin.med.
no.12:54-60 '61.   (MIRA 15:9)

1. Iz kafedry propedevticheskoy terapii (zav. - prof. M.D.
Tushinskiy) I Leningradskogo meditsinskogo instituta imeni
I.P. Pavlova.
                        (INFLUENZA)

KAN, G.S., starshiy nauchnyy sotrudnik; KAN, Ye.L., starshiy nauchnyy
    sotrudnik; POLETAYEVA, K.A., mladshiy nauchnyy sotrudnik

    Experimental tuberculosis of the spleen and its interrelation with
    the nervous system. K izuch.roli nerv.sist.v pat., immun.i lech.
    tub. no.2:46-62 '61.   (MIRA 15:10)

    1. Iz laboratorii eksperimental'noy patologii i terapii (zav. -
    G.S.Kan) Leningradskogo nauchno-issledovatel'skogo instituta
    tuberkuleza (dir. - prof. A.D.Semenov) i gruppy deystvitel'nogo
    chlena AMN SSSR prof. M.D.Tushinskogo.
                    (SPLEEN--TUBERCULOSIS) (NERVOUS SYSTEM)

KAN, Ye.L., starshiy nauchnyy sotrudnik

Effect of deafferentation of the extremity on the blood system
and the development of a focus of specific inflammation in the
skin of dogs. K izuch.roli nerv.sist.v pat., immun.i lech.tub.
no.2:212-218 '61.   (MIRA 15:10)

1. Iz gruppy deystvitel'nogo chlena AMN SSSR prof. M.D.Tushinskogo i
laboratorii eksperimental'noy patologii i terapii (zav. - G.S.Kan)
Leningradskogo nauchno-issledovatel'skogo instituta tuberkuleza.
(SKIN--TUBERCULOSIS)   (EXTREMITIES (ANATOMY--INNERVATION)
                    (HEMOPOIETIC SYSTEM)

KAN, Ye.L., starshiy nauchnyy sotrudnik; SHKOL'NIKOVA, M.D., starshiy
nauchnyy sotrudnik

Study of the changes in the blood system during the formation of
antituberculosis immunity and following superinfection. K izuch.
roli nerv.sist.v pat., immun.i lech.tub. no.2:271-280 '61.
(MIRA 15:10)

1. Iz laboratorii eksperimental'noy patologii i terapii (zav. -
G.S.Kan) Leningradskogo nauchno-issledovatel'skogo instituta
tuberkuleza.
(IMMUNOHEMATOLOGY) (TUBERCULOSIS)

KAN, Ye.L.

Physiological mechanisms of immunity to tuberculosis. Report No. 1:
The effect of antituberculosis vaccination of leucocytic reactions
provoked by the parenteral administration of milk. Biul.eksp.
biol.i med. 54 no.11:80-83 N '62. (MIRA 15:12)

1. Iz laboratorii eksperimental'noy patologii i terapii (zav.
G.S.Kan) Leningradskogo nauchno-issledovatel'skogo instituta
tuberkuleza (dir. - prof. A.D.Semenov)Predstavlena akademikom
V.N.Chernigovskim.
(TUBERCULOSIS—PREVENTIV INOCULATION) (LEUCOCYTES)

KAN, Ye.L.

Complement fixation reaction in BCG-vaccinated rabbits. Biul.eksp.
biol.i med. 57 no.5:59-62 My '64.   (MIRA 18:2)

1. Laboratoriya eksperimental'noy patologii i terapii (zav. G.S.
Kan) Leningradskogo nauchno-issledovatel'skogo instituta tuber-
kuleza (dir. - prof. A.D.Semenov). Submitted February 4, 1963.

KAN, G.S.; KAN, Ye.L.

Effect of antituberculous vaccination on post-transfusion shock.
Biul. eksp. biol. i med. 57 no.6:64-69 Je '64.

(MIRA 18:4)

1. Laboratoriya eksperimental'noy patologii i terapii (zav. - G.S.
Kan) Leningradskogo nauchno-issledovatel'skogo instituta tuberkuleza
(dir. - prof. A.D.Semenov).

SOV/130-58-6-7/20

AUTHORS: Ful'makht, V.V., Kan, Ye.M. and Chumichev, A.G., Engineers

TITLE: The Largest Installation in the World for the Continuous Casting of Steel (Samaya krupnaya v mire ustanovka nepreryvnoy razlivki stali)

ABSTRACT: The authors describe a four-machine, continuous-casting installation designed jointly by the Giprostal' and the Tsentral'nyy nauchno issledovatel'skiy institut chernoy metall- urgii (Central Research Institute for Ferrous Metallurgy). This installation is being built in the melting shop of the Stalino Metallurgical Works for casting four billets or slabs simultaneously of carbon and low-alloy steels from 140-ton ladles. Thickness and width ranges are 120-250 and 600-1200 mm, respectively and casting speed is 0.6-1.2 m/min. All units are in a 25-m dia. reinforced concrete-faced pit with its bottom 24 m below floor level; the pouring platform is 3 m above it. The platform has four 14-ton tundishes, two of which are in reserve. The tundishes can be quickly moved with the aid of rotary and lifting tables. The four moulds are of the independent-wall construction and each wall consists of an inner copper and an outer cast-iron plate with channels for cooling water between them; the mould for a particular size of billet

Card1/3

The Largest Installation in the World for the Continuous Casting of Steel

is assembled in a special holder. There is a special device for lubricating the inner walls when pouring starts. The casting is started with the aid of three-part primer, 13.8 m long, with a swallow-tail top which forms a bottom for the mould. The primer is lowered by the machine roller system and is split into its component parts and stored. Each directing roller-section, with a total length of 10.5 m, consists of an upper and a lower part, the rollers being 140 x 1 200 mm. The billet is spray-cooled as it passes down the section and then enters the drawing stand provided with hollow, water-cooler rollers. Under each drawing stand is a flame-cutting install- ation which cuts the billet into lengths of 4.2 - 5.2 m. The cutting system descends at the casting speed and can be raised at 0.3 m/sec. The cut billets are raised by 16-ton lifts (one for each pair of machines) to the floor level. Instrumentation is provided on panels at the pouring and intermediate levels, television is available for remote observation and a loudspeaker system for intercommunication. A model of the installation is on exhibition at the Brussels fair. An annual saving of 9.4

Card 2/3

SOV/130-58-6-7/20

The Largest Installation in the World for the Continuous Casting of Steel

million roubles is expected from the use of the continuous instead of ordinary methods of casting.
There are two figures.

ASSOCIATION: Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (Central Research Institute for Ferrous Metallurgy)

Card 3/3   1. Steel - Casting   2. Industrial plants - Equipment

SOV/133-58-11-6/25

AUTHORS: Boychenko, M.S., Candidate of Technical Sciences, Gavrilov, O.T., Kan, Yu.B. and Kononov, B.Z., Engineers

TITLE: Semi-continuous Casting of Stainless Steel (Poluneprer-yvnaya razlivka nerzhaveyushchey stali)

PERIODICAL: Stal', 1958, Nr 11, pp 983 - 987 (USSR)

ABSTRACT: Semi-continuous casting of steel 1Kh18N9T into slabs 175 x 300 mm for the production of cold-rolled sheets is described. Steel is smelted in a 20ton basic electric furnace and after casting eight 4-ton ingots the remaining steel is poured into an intermediate capacity preheated to 1 100 - 1 200 ^{0}C of the semi-continuous casting machine. From the intermediate capacity the metal is passed into a crystalliser (mould) through a 90^{0} bend passage with a velocity of 1 100 - 1 200 mm/min and is cast into slabs 4 500 mm long, weighing 1 700 kg. The initially used and subsequently modified casting equip-ment is shown in figures 1 and 2, respectively. The main difficulty in obtaining quality sheets was the formation of skin on the surface of the metal in the crystalliser and its subsequent passage into the ingot. To prevent this, a wooden plank is placed on the level

Card1/4   of the metal of a somewhat smaller cross-section than

Semi-continuous Casting of Stainless Steel

that of the slab. In the centre of the plank, an
opening for the passage of the stream of metal is made.
Such planks protect the surface of the metal from
oxidation, decrease heat losses and form a good lubri-
cation of the walls of the crystalliser during casting,
as they evolve volatiles condensing on the walls. The
above considerably decreased the formation of skin. Cast
slabs are weighed and cut into measured lengths using an
aluminium-magnesium powder (the width of the cut
8-12 mm). From the head part about 250 mm (about 5.5%
of the length) is cut off in order to remove shrinkage
cavity (Figure 3). The surface of the slabs is planed
to a depth of about 5 mm. The macrostructure of the
cast slab is shown in Figure 4. Two main forms of non-
metallic inclusions were observed: a) titanium nitrides,
situated in groups in the underskin layer, in the axial
zone at a distance of 1/4 of the slab thickness
(Figure 5a); b) very fine inclusions in the form of
thin, broken chains which are probably carbo-nitrides
(Figure 5b). The microstructure of the metal was
dendritic, more coarse in the middle than at the surface
Card2/4   of the slab (Figure 6). Mechanical properties and

Semi-continuous Casting of Stainless Steel SOV/133-58-11-6/25

resistance to inter-crystalline corrosion of cold-rolled
sheets from ordinary and semi-continuously cast ingots
was approximately the same and corresponded to require-
ments of TU 3126-52. The surface quality of the sheets
from the above two kinds of ingots was the same.
The process of crystallisation of semi-continuously cast
slabs was investigated using radioactive phosphorus.
Samples of radioactive phosphorus mixed with powdered
iron and enclosed in a copper tube (about 100 mm long)
were fixed to a steel rod which was introduced into the
slab immediately after the end of casting (casting
velocity 1 000 mm/min). The results of the investigation
(shown in Figure 7) indicated that permissible linear
velocity of casting is within a range of 1 100 - 1 200
mm/min. During the development of the practice,
altogether 130 tons of the steel were cast in this
manner with a coefficient of utilisation of metal of
1.96 instead of 2.11 when producing cold-rolled sheets
from ingots. There are 7 figures and 2 Soviet references.

Card3/4

Semi-continuous Casting of Stainless Steel   SOV/133-58-11-6/25

ASSOCIATIONS: TsNIIChM and Zavod "Krasnyy Oktyabr'"
                  ("Krasnyy Oktyabr'" Works)

Card 4/4

AUTHORS: Kan, Yu.Ye., Matevosyan, Ye. P., Kononov, B.Z.

TITLE: Comparing the Quality of 1X18H9T (1Kh18N9T) Ingots Produced by the Semi-Continuous and by the Conventional Methods

PERIODICAL: Stal', 1960, No. 9, pp. 846-849

TEXT: From the ingots produced according to the conventional methods in a basic arc furnace a longitudinal template was made, while from the ingots produced according to the "semi-continuous" method longitudinal and transverse templates were made in various arrangements. As to the macrostructure, no basic difference was found between the two kinds of specimens, in the "semi-continuous" specimens, however, an external approximately 7 mm thick case was observed; furthermore, the crystallites in these specimens had a somewhat smaller cross-section in the transcrystallization zone. The microstructural tests confirmed the assumption of several authors (Ref. 2) that the quantity of α-phase decreases as the crystallization rate increases. In the border-zone of the "semi-continuous" ingots the inclusions of the α-phase are smaller and are more evenly distributed over the basic austenite structure than in the conventional ingots. Chemical ana-

Card 1/2

18.3200

AUTHORS: Rutes, V. S., Candidate of Technical Sciences; Katomin, B. N.,
             Engineer; Kan, Yu. Ye., Engineer; Petrov, V. K., Engineer,
             and Lobanov, V. V., Engineer

TITLE: Adopting the process of the continuous casting of carbon steel
             at the Novo-Lipetsk metallurgicheskiy zavod (Novo-Lipetsk
             Metallurgical Plant)

PERIODICAL: Stal', no. 4, 1961, 311 - 317

TEXT: Two units for continuous casting of carbon steel have been in
operation in the Novo-Lipetsk Metallurgical Plant since 1959 and 1960, re-
spectively. The units used for casting 150 x 620, 150 x 770 and 170 x 1020
mm slabs are arranged vertically (TsNIIChM-design), the pits are 16.5 m
deep, while the 90-ton ladle is mounted 9 m above the workshop floor. Met-
al is poured into the crystallizer via a 5 - 7-ton intermittent ladle. The
unit consists of two independent machines, each containing a crystallizer,
secondary system, pulling stands, gas cutters, discharge devices (Fig. 1).
The intermittent ladle is provided with spouts, (28 - 30 mm in diameter),

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Adopting the process of the continuous casting... A054/A127

in accordance with the composition of the steel. The crystallizer consists
of double-sheet walls, 1.5 m long, the inner sheet is made of chromium-
bronze (БрХр0.6 = BrKhr0.6), the outer of steel. Cooling water is supplied
at a rate of 150 - 250 cu m/h to flow between the sheets. The crystallizer
reciprocates vertically over 20 mm (downward) by means of a roller-system,
synchronously with the slab, while its upward motion is 3-times faster than
that of the slab. The inoculator (9 m long) has a special groove on its
upper part (in the crystallizer), ensuring strong bond with the slab. The
cooling device, 6.5 m long, is provided with frames, connected with 120-mm
diameter rolls. The frames can be adjusted to the slab size. The cooling
area is divided into 3 zones, the water flow can be independently controlled
on each side and for each zone. Water consumption as a function of slab
section-size and type of metal varies between 30 and 75 cu m/h. The slabs
are removed from the crystallizer by pulling equipment consisting of four
300-mm diameter guiding beams, which are pressed to the slabs by means of a
hydraulic system (40 - 60 atmospheres). Immediately after discharging the
slabs are cut to pieces 6 - 8 m long, by 2 oxy-acetylene cutters with 3-m
stroke. The equipment is completed with a roll-over machine and conveying

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Adopting the process of the continuous casting...   A054/A127

facilities. As this was the first continuous casting machine of such large
size, literature gave no indications as to its operation. In the beginning
150 x 620 mm slabs were cast and in the first month not one out of 12 ladles
could be poured completely, while in the second month out of 18 ladles 6
could be poured. Operation had to be interrupted mostly due to the troubles
with the intermittent ladle, some other parts of the equipment and the de-
formation of slabs observed under the discharge device. This drawback could
be eliminated by improving secondary cooling conditions. Also the faulty
operation of the spouts, rupture of the plugs could be eliminated. A fre-
quent cause of trouble was the tendency of the metal to break through under
the crystallizer, mainly by the slag inclusions which are difficult to re-
move from the narrow side of slabs. The crystallizer operation was often
affected by water-leakage through the sheets, due to their burning out.
The greater the slabs, the simpler and easier the casting process. Since
November 1959, 170 x 1020 mm slabs have been produced from killed carbon
steel. The amount of faulty castings was reduced from 30.4% to 2.9% in 8
months. The temperature of the liquid metal in the 90-ton ladle was tested
in the 1580° - 1640°C range. The optimum temperatures are 1600° - 1630°C.
Below 1600°C there is the risk of the metal clogging the spouts of the inter-

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Adopting the process of the continuous casting... A054/A127

mittent ladle, whereas above 1630°C rupture of the metal under the crystal-
lizer and longitudinal fractures on the broad sides of the slab can be ex-
pected. The optimum pouring speed for 150 x 620 mm (A) slabs was 0.85 -
0.90 m/min, for 150 x 770 mm (B) slabs: 0.75 - 0.80 m/min and for 170 x
1020 mm (C) slabs: 0.50 - 0.60 m/min. The metal consumption - in the same
sequence - was: A: 550 - 610 kg/min, B: 690 - 740 and C: 700 - 850 kg/min.
When pouring under the lowest rate, the spouts of the intermittend ladle
tend to get clogged and due to the longer pouring time, the operation of the
ladle-stoppers was affected. An increase of the pouring rate above the max-
imum (0.90 m/min) may result in rupture of the metal under the crystallizer.
For cooling water consumption (in the crystallizer) the following values were
found (in cu m/h): slabs A: 150 - 200; slabs B: 195 - 210; slabs C: 225 -
250. Water consumption for secondary cooling, (in cu m/h): slabs A: 31 -34,
slabs B: 37.5 - 41, slabs C: 44 - 52. Heat dissipation, (10^6 cal/h): slabs
A: 1.7; slabs B: 1.9; slabs C: 2.0. In the early operation of the equip-
ment waste was considerable: in November 1959 26.4%. The main defects are
longitudinal cracks, leaks, beads, slag inclusions, etc. Longitudinal sur-
face cracks appeared frequently which could be prevented by pouring the

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Adopting the process of the continuous casting...   A054/A127

metal into the crystallizer excentrically, at 250 mm from the thin wall of
the crystallizer and by applying the optimum sulfur and carbon content of
the metal. At a carbon content of 0.14% and a sulfur content below 0.028%
no cracks formed; at 0.17% carbon content the allowed sulfur content is
0.020%. The other types of defects could be eliminated by improving the
operation of the intermittent ladle, stoppers, etc. Bead formation was
prevented by maintaining the required level of the metal in the crystallizer;
by reducing the coating of the intermittent ladle and improving the removal
of slag the amount of slag inclusions were reduced. In March 1960, the
rate of flawless 170 x 1020 mm slabs from killed carbon steel was as high
as 94 - 96%, the maximum waste: 1.9%. The slabs were rolled into 2.5 -
3.0 mm and 10 - 25 mm sheets and it was found that sheets of cast slabs have
the same plasticity and surface-quality as those made of rolled slabs.
Mechanical properties, microstructure and macrostructure of the cast slabs
meet the standard requirements. There are 4 figures and 2 tables.

ASSOCIATION: TsNIIChM and Novo-Lipetskiy metallurgicheskiy zavod (Novo-
             Lipetsk Metallurgical Plant)

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Z/034/60/000/08/002/030
E073/E335

AUTHOR: Káňa, Engineer

TITLE: Possibilities of Increasing the Rate of Production of Blooming Mills from the Point of View of the Mechanical Equipment

PERIODICAL: Hutnické listy, 1960, Nr 8, pp 596 - 597

ABSTRACT: This paper was presented at a Conference on Rolling, held on March 9-10, 1960, in Prague.
By calculation and actual measurements at the NHKG Works it was proved that a considerably higher performance can be achieved with existing equipment than is being achieved at present. For this purpose it is necessary to eliminate the existing bottlenecks in the soaking pits and to increase the power of the driving motors. Whilst in the USSR and USA increasing use is being made of pulling ingot trolleys by ropes, this has so far not been applied in Czechoslovakia for fear of high rates of rope failure and the necessity of stretching the ropes due to the considerable length involved, which is about 270 m at NHKG. Various measures are recommended, namely, modifications in the design of the rolling stands (substituting AC drives of the rollers

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Z/034/60/000/08/002/030
E073/E335

Possibilities of Increasing the Rate of Production of Blooming Mills
from the Point of View of the Mechanical Equipment

       by individual DC drives), the manipulators, the shears
(including the removal of the waste material cut off by
the shears), substitution of mesh filters used at present
by lamella filters, as was done in the blooming mill of
VZKG, which was supplied to Russia. Furthermore, bearings
from synthetic materials should be substituted by anti-
friction bearings.

ASSOCIATION: Hutní projekt, Ostrava (Metallurgical-project
     Office, Ostrava)

Card 2/2

KANA, B.

Business accounting used by a complex group of workers in housing con-
struction, p. 324, POZEMNI STAVBY, (Ministerstvo stavebnictvi) Praha,
Vol. 3, No. 8, Aug. 1955

SOURCE: East European Accessions List (EEAL) Library of Congress,
          Vol. 4, No. 12, December 1955

MEDRICKY, Z., ins.; KANA, J., ins.

Thermal conditions of coking-oven batteries. Paliva 41
no.1:14-19 Ja '61.

1. Nova hut Klementa Gottwalda, koksovna.

KANA, R.

KANA, R.   Using continual building methods carried out by complex (cyclic) workers'
           unit in Slovakia.   p. 258.

Vol. 4, no. 7, July 1956
POZEMNÍ STAVBY
TECHNOLOGY
Praha, Czechoslovakia

So: East European Accession Vol. 6, no. 2, 1957

KANA, R.

Use of assembly-line method of building in Slovakia.   p. 72.
POZEMNI STAVBY. (Ministerstvo stavebnictvi) Praha. Vol. 3,
no. 2, February 1955.

SOURCE: East European Accessions List (EEAL), Library of Congress,
Vol. 5, No. 12, December 1956.

Kana, R.

Kana, R.   The manufacture and conveyance of mortar in constructing a
          housing development in Prievidza.   p. 83.

Vol. 5, no. 2, Feb. 1957.
POZEMNI STAVBY
TECHNOLOGY
Czechoslovakia

So. East European Accessions, Vol. 6, No. 5, May 1957

KANA, T.

Electric power in industrial enterprises. p. 617.

TECHNICKA PRACA. (Rada vedeckych technickych spolocnosti pri Slovenskej akademii
vied) Bratislava, Czechoslovakia. Vol. 11, no. 8, Aug. 1959.

Monthly list of East European Accessions (EEAI), LC, Vol. 8, no. 10, Oct. 1959. Uncl.

KANA, Tomas, inz.

For saving of fuel and power in industries. Energetika Cz 11 no.11: 562 N '61.

(Fuel)   (Power resources)